A. TITLE OF THE INVENTION

BREADS COMPRISING EMULSIFIED LIQUID SHORTENING COMPOSITIONS COMPRISING DIETARY FIBER GEL, WATER AND LIPID.

B. CROSS-REFERENCE TO RELATED APPLICATIONS

Not Applicable

C. STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH/DEVELOPMENT

The present invention does not involve any form of federally sponsored research or development.

D. BACKGROUND OF THE INVENTION

The present invention relates to breads comprising emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid. Recent media attention to the global problem of obesity demonstrates a need for greater availability of foods with low caloric and fat content. This is especially true for foods that typically have high fat and caloric content, such as breads.

Breads typically comprise some fat. Other ingredients can vary according to the type of bread and the recipe followed, but typically, breads are high in both fat and caloric content. The term "breads", as used in this document, is intended to include rolls and pancakes, and pancake mixes.

In recent years, some companies have begun to offer reduced fat breads. This variety of bread, however, often fails to retain the desirable taste and texture of breads comprising higher fat contents.

The absence of a means to reduce the fat and caloric content of breads while still producing a desirably flavored and textured bread presents an unmet need in today's food industry.

E. BRIEF SUMMARY OF THE INVENTION

It is an object of the present invention to provide a unique composition of matter embodied by low-calorie and low-fat breads. This reduction in caloric and fat content answers an unmet need

in the food industry to provide the consuming public with a healthier, higher fiber alternative to traditional types of breads that typically are inherently fattening. It is another object of the present invention to provide breads that have been fortified with insoluble fiber and other functional foods.

Dietary fiber gels for calorie reduced foods hold the key to meeting this need. Dietary fiber gels for calorie reduced foods are fully described in U.S. Patent number 5,766,662 (the '662 patent). These dietary fiber gels comprise insoluble dietary fibers consisting of morphologically disintegrated cellular structures, and are characterized by their ability to retain large amounts of water. Additionally, these dietary fiber gels are characterized by their high viscosity at low solid levels. Other insoluble fibers derived from cereals, grains and legumes consist of morphologically in tact cellular structures, and thus impart a gritty texture to the foods in which they are contained. The dietary fiber gels disclosed in the '662 patent, however, consist of morphologically disintegrated cellular structures and thus impart a smoother texture than other insoluble fiber formulations.

More specifically, the present invention utilizes emulsified mixtures of the dietary fiber gels disclosed in the '662 patent, the emulsified mixtures further comprising, at a minimum, water and lipid. These emulsified mixtures are fully described in and are the subject of United States patent application number 10/669731 filed 09/24/2003. These emulsified mixtures, or "emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid", can further comprise functional foods such as high omega three and omega six oils and pure omega three and omega six fatty acids, medium chain triglyceride, beta carotene, calcium estearate, vitamin E, bioflavonoids, fagopyritrol, polyphenolic antioxidants of vegetable origin, lycopene, luteine and soluble fiber, for example Beta-Glucan derived from yeast, and other soluble fibers derived from grain, flax seed, and other vegetable and fruit fiber sources, and any combination thereof. Hence, in addition to reducing fat and caloric content of breads, further health benefits can be achieved by replacing a portion of fat with emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid.

According to the present invention, fat and caloric content can be reduced by the replacement of the fat normally found in breads with emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid. This replacement of fat does not adversely affect either the taste or texture of the breads. In fact, in the case of bread marketed to consumers as toast, croutons and bread chips, the fiber gel added according to the present invention results in lower breakage occurring in the final packaging by adding tensile strength to the bread. The result is that fat and caloric content of breads can be manipulated with minimal adverse effect on taste and texture, and as stated above, additional health benefits can be achieved through consumption of breads comprising emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid when functional foods are included in the formulations.

Further objects, advantages and features of the present invention will present themselves in the following detailed description.

## F. DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

This invention is directed to breads comprising emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid. According to the present invention, fat and caloric content can be reduced by the replacement of the fat normally found in breads with emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid (hereinafter "emulsified liquid shortening"). This replacement of fat does not adversely affect either the taste or texture of the breads. The result is that fat and caloric content of breads can be manipulated with minimal effect on taste and texture.

Alternatively, the breads can be provided in the form of bread mixes with the intention that a consumer can mix and bake them at a convenient, post-purchase time, and bread mixes are considered to be within the scope of this invention. Similarly, breads can also be provided in the form of bread dough with the intention that a consumer can bake them at a convenient, post-

purchase time, and bread dough is considered to be within the scope of this invention. As such, for purposes of this document, the term "breads" is defined to include bread mixes and bread dough.

Different categories of bread are available to consumers, including conventional breads and pancakes. Conventional breads, for example Italian, French, wheat, multigrain, oat, rye, pumpernickel, white, and the like, can be formulated such that the bread comprises 0.2 percent to 5.0 percent dietary fiber gel solids by replacing an appropriate amount, that is, an amount prorated to deliver this range of dietary fiber gel solids, of fat, including oil and liquid shortening, with an essentially identical amount of emulsified liquid shortening. Pancakes, including for example buckwheat, buttermilk and the like, and pancake mixes, can be formulated such that the pancakes, and pancakes made from the pancake mixes, comprise 0.2 percent to 3.5 percent dietary fiber gel solids by replacing an appropriate amount, that is, an amount prorated to deliver this range of dietary fiber gel solids, of fat, including oil and liquid shortening, with an essentially identical amount of emulsified liquid shortening.

The result is that fat and caloric content of breads can be manipulated with minimal effect on taste and texture, and as stated above, additional health benefits can be achieved through consumption of breads comprising emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid when functional foods are included in the formulations.